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WASHINGTONIA × *FILIBUSTA* (ARECACEAE: CORYPHOIDEAE), A NEW HYBRID FROM CULTIVATION

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ABSTRACT

Washingtonia × *filibusta*, a hybrid between *W. filifera* H. Wendl. and *W. robusta* H. Wendl., is named and described from a cultivated plant in Indio, California. *Washingtonia filifera* (California fan palm) and *W. robusta* (Mexican fan palm) have long been cultivated and are especially common landscape subjects in California, western Arizona, and southern Nevada as well as other regions with a suitable climate. They frequently grow side-by-side in landscape settings, providing ample opportunity for hybridization. Hybrid plants are intermediate between the parents and for the past 30 years have become common subjects in the nursery and landscape trade, where they are recognized for their different appearance and cultivation requirements.

Washingtonia × filibusta Hort. ex Hodel, **sp. hyb. nov.** (*W. filifera* H. Wendl. × *W. robusta* H. Wendl.). **TYPE: CULTIVATED. USA. California.** Riverside Co.: Indio, Desert Trace Way, 100 m W of Jackson Street, 1 m elev., 33° 44' 56.31" N, 116° 13' 02.23" W, 13 Jun 2014, *D.R. Hodel 2040* with K. Greby (holotype: BH).

Similar and intermediate to both its parents. Differing from *W. filifera* in its more slender stem; smaller, denser leaf canopy; smaller, brighter green leaves with a small patch of white tomentum abaxially at petiole and blade junction; and shorter inflorescences. Differing from *W. robusta* in its more robust stem not abruptly flared at the base; larger, more expansive canopy; larger, but lighter, medium green leaves; and longer inflorescences. Figures 1–4.

Tree palms, solitary, to 20 m tall (Fig. 1). **Stem** erect, straight, 30–50 cm DBH, slightly flared at base, typically covered with persistent, brownish leaf bases to give rough appearance or if these are removed then smooth, brown, with vertical fissures. **Leaves** ca. 40, palmate, induplicate, erect to spreading to drooping, medium green (Fig. 1); petiole 125 cm long, 14 cm wide at base, 5.75 cm wide at apex, abaxially convex with tinge of burgundy color toward base and moderately covered with whitish, scale-like hairs throughout, adaxially slightly concave or flat and glabrous, margins sharp and with orange-brown, curved teeth 1.25 cm long especially toward base, few, tan, coarse fibers to 8 cm long at base; blade 160 cm long, 180 cm wide, split to ca. 30% in middle, 50% laterally, and 90% at base into 80 segments, the middle the longest, these 125 × 7 cm, lateral 117 × 5 cm, basal 91 × 2 cm, free tips pendulous, hastula 12.5 cm long, narrowly triangular, green, abaxially petiole extending into blade 12.5 cm, narrowly triangular, green with a patch of whitish, felt-like tomentum (Fig. 2), slender, tan filament-like threads at sinuses of adjacent segments especially adaxially. **Inflorescences** ca. 20, interfoliar, to 5 m long (Fig. 1), ascending to spreading for ca. proximal one-third and equaling the subtending leaf and then greatly exceeding this leaf and pendulous in distal two-thirds; base not seen; peduncle at least 125 cm long, ascending to spreading, prophyll at least 40 cm long, 11.5 cm wide, 2-edged, bifid apically, green but tinged with burgundy color toward base, variously covered with woolly to felt-like, tan to whitish tomentum, peduncular bracts 4, green distally, tinged with burgundy color proximally, tips lacerate, brown, variously covered with +/- deciduous, tan to whitish tomentum, most distal bract, ca. 91 cm long with tip split

Figure 1. Type plant of *Washingtonia* × *filibusta*, *Hodel 2040*, Desert Trace Way, Indio, California. © D.R Hodel.

Figure 2. Abaxial surface of hastula of *Washingtonia* × *filibusta* showing parch of whitish, felt-like tomentum (type, *Hodel 2040*). © D.R Hodel.

Figure 3. Flowers of *Washingtonia* × *filibusta* (type, *Hodel 2040*). © D.R Hodel.

apically for 15 cm; rachis 150 cm long, sheathed with bracts like those of peduncle, with 4 main branches, the most proximal the longest, this to 370 cm long, with 11 distinct, partial inflorescences or panicles, of these the most proximal is the largest, to 51 cm long, branched to 4 orders, base of inflorescence branches with bracts like those of peduncle, partial inflorescences subtended by tan, thick-papery bracts 81 cm long, 4.5 cm wide; rachillae numerous, slender, 125 mm long, 1 mm diam. cm long. **Flowers** in 2 spiraling rows, ca. 3 mm distant within a row, 8 × 10 mm, white (Fig. 3), on short pedicel 1 mm high; calyx 4 mm high, tubular, 1 mm wide at base, 2 mm wide at apex and shallowly lobed; petals 8 mm long with a slender base 3 mm long and 0.75 mm wide, distal 5 mm conspicuously reflexed and 2 mm wide, thinnish and nearly transparent, tip awl-like, stamens 6, 6 mm long, connate in basal 1 mm and adnate to petals, although shorter than petals the distal portion is conspicuous because of reflexed distal portion of petals, anthers 1.75 mm long; pistil 8 mm long, style slender, 7.5 mm long, conspicuous above stamens and reflexed petals, ovary abruptly flared, 0.5 mm × 1 mm. **Fruits** not seen.

Discussion

Washingtonia filifera from northern Baja California, México, southeastern California, and southwestern Arizona, and *W. robusta* from southern Baja California and western Sonora, México (Bailey 1936; Henderson et al. 1995) have long been cultivated as landscape subjects in the southwestern USA and other regions with a suitable climate. In California in particular, where they are much prized for their ease of culture, fast growth rate, and handsome nature, they are two of the most common ornamental palms and are frequently found growing together, adorning landscapes, streets, gardens, parks, and other public areas.

Over the last 30 years or so growers, landscapers, arborists, horticulturists, and botanists have recognized that intermediate forms between the two species have become common in the nursery trade and landscape. These intermediate forms differ so substantially from either parent in their appearance and, to some extent, their cultivation requirements that growers and landscapers informally coined a name for them, "*filibusta,*" which I have adopted as the epithet for this hybrid species. Table 1 summarizes some of the major differences between *W.* × *filibusta* and its parents. Figure 4 illustrates the three taxa together.

The differences between *Washingtonia* × *filibusta* and its parents can be critical to those who grow and use them in the nursery and landscape trades. Because the palms are frequently and effectively used in homogenous, mass plantings, especially lining streets, boulevards, and other thoroughfares, defining large open spaces, or "softening" buildings or other structures, it is critical to have uniform subjects that differ little or not at all in their appearance. When used in such a manner, the hybrid and its two parent trees are sufficiently different to warrant specifying one taxon while excluding the other two.

Other than their differences in appearance, *Washingtonia* × *filibusta* tends to grow significantly faster than *W. filifera* and as fast as or slightly faster than *W. robusta.* Perhaps most critical, though, is susceptibility to the fungal disease diamond scale, which causes black spotting, chlorosis and necrosis, and premature death of leaves (Hodel 2012). Only *W. filifera* is susceptible to this disease and then only in cooler, moister coastal areas and valleys in California subject to marine influence. It does not attack *W. filifera* in desert areas while *W. robusta* is completely resistant anywhere. Unfortunately, *W.* × *filibusta* is susceptible to diamond scale, with the severity of the disease varying by which parent has a greater influence in the hybrid.

Table 1. Comparison of *Washingtonia filifera*, *W.* × *filibusta*, and *W. robusta*.

	W. filifera	*W.* × *filibusta*	*W. robusta*
Trunk	20 m tall; 50–90 cm DBH, flared only slightly at base.	20–30 m tall; 30–50 cm DBH, flared only slightly at base.	30 m tall; 25–30 cm DBH, abruptly and prominently flared at base.
Canopy	Loose, open.	Moderately loose and open.	Dense, compact
Leaf color	Dull, gray-green or leaden green.	Medium green, only slightly shiny.	Bright, shiny, dark green.
Leaf length (petiole and blade)	3.5–4 m.	2.5–3 m long.	2–2.5 m.
White patch of tomentum abaxial of hastula	Lacking.	Yes.	Yes, prominent.
Inflorescences	Greatly exceeding leaves, 5–6 m long.	Greatly exceeding leaves, 4–5 m long.	Slightly to greatly exceeding leaves, 2.5–4 m long.
Resistance to diamond scale disease	No.	No.	Yes.

Washingtonia × *filibusta* is not an intentionally made hybrid and likely came about inadvertently when growers and others in the nursery trade gathered seeds for propagation of *Washingtonia filifera* and *W. robusta* from cultivated trees. Such seeds were likely the result of hybridization between the two species. Gathering seeds from cultivated trees for propagation of these palms is a typical practice in the nursery trade because the trees are locally common if not abundant and doing so precludes a long and sometimes difficult and arduous and now increasingly illegal trip into desert habitats to collect seeds from wild, natural trees.

The spontaneous hybridization in cultivation shows that there are few or no barriers to hybridization between *Washingtonia filifera* and *W. robusta*. The only barrier to hybridization in wild plants seems to be their geographical isolation. The ranges of the two species do not overlap and in Baja California, where they are closest, there is a several hundred km gap between the northern *W. filifera* and the southern *W. robusta*. Nonetheless, careful exploration of the area north and south of the state line between Baja California Norte and Baja California Sur might prove especially fruitful if *Washingtonia* is discovered in this region and examined for possible hybridization.

Some botanists feel that *Washingtonia* might consist of only one, highly variable species with the two presently accepted and commonly cultivated taxa representing the two extremes, in this case the northerly *W. filifera* and the southerly *W. robusta*. To validate this notion, a judicious and systematic comparison and analysis of *Washingtonia* along the entire length of Baja California would be necessary and perhaps illuminating, looking for populations with a gradation of characters from north to south between the two species. Also, the viability of F2 and/or backcrossed seeds and the fertility of plants so derived presumably might be open to relatively simple observation, since F1 hybrids grow within plantings of otherwise parental individuals. This notion of only one highly variable species might have its origins in an unusual and much visited site at Cataviña near the southerly end of the range of *W. filifera*. Here there are unusually tall specimens of *W. filifera* with unusually slender trunks, this combination leading some to identify them erroneously as *W. robusta*.

Figure 4. *Washingtonia* × *filibusta* (left foreground), *W. robusta* (center), and *W. filifera* (right foreground and left-center background), cultivated at Tyler Ave. and S.R. 91, Riverside, California. © D.R Hodel

Unless growers gather seeds from wild, natural stands or cultivated trees of one species sufficiently isolated to preclude hybridization, *Washingtonia* × *filibusta* will continue to become more common in the landscape, eventually replacing *W. filifera* and *W. robusta*. This trend is of considerable concern in urban areas in the Coachella Valley, such as Palm Springs, where *Washingtonia* × *filibusta* or cultivated *W. robusta* could genetically contaminate nearby wild stands of *W. filifera*.

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